LISTING OF THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in this application.

1. (currently amended) A plant comprising at least one functional, stable, and autonomous mini-chromosome, wherein said mini-chromosome has a transmission efficiency during mitotic division of at least 90%, and wherein the mini-chromosome comprises a plant centromere, wherein the centromere (i) comprises a polynucleotide comprising a nucleic acid sequence having at least 95% sequence identity with SEQ ID NO:24~~, or a fragment of 20-360 nucleotides of said nucleic acid sequence~~, and (ii) confers an ability to segregate the mini-chromosome to daughter cells through cell division.

2. (original) The plant according to claim 1, wherein the mini-chromosome has a transmission efficiency during mitotic division of at least 95%.

3. (previously presented) The plant according to claim 1, wherein the mini-chromosome has a transmission efficiency during meiotic division of at least 80%.

Claims 4-6 (canceled).

7. (previously presented) The plant according to claim 1, wherein the mini-chromosome is 1000 kilobases or less in length.

Claims 8-9 (canceled)

10. (previously presented) The plant according to claim 1, wherein the mini-chromosome comprises a site for site-specific recombination.

11. (previously presented) The plant according to claim 1, wherein the

mini-chromosome comprises a centromeric nucleic acid insert derived from a crop plant centromere.

Claims 12-13 (canceled)

14. (previously presented) The plant according to claim 1, wherein the mini-chromosome comprises a centromeric nucleic acid insert that comprises artificially synthesized repeated nucleotide sequences.

15. (previously presented) The plant according to claim 1, wherein the mini-chromosome is derived from a donor clone or a centromere clone and has substitutions, deletions, insertions, duplications or arrangements of one or more nucleotides in the mini-chromosome compared to the nucleotide sequence of the donor clone or centromere clone.

16. (previously presented) The plant of claim 1, wherein the mini-chromosome is obtained by passage of the mini-chromosome through one or more hosts.

Claims 17-18 (canceled)

19. (previously presented) The plant according to claim 1, wherein the mini-chromosome comprises one or more exogenous nucleic acids.

Claims 20-24 (canceled)

25. (previously presented) The plant according to claim 19, wherein at least one exogenous nucleic acid is operably linked to a heterologous regulatory sequence functional in plant cells.

Claims 26-29 (canceled)

30. (previously presented) The plant according to claim 1, wherein the mini-chromosome comprises an exogenous nucleic acid that confers herbicide resistance, insect resistance, disease resistance, or stress resistance on the plant.

Claims 31-38 (canceled)

39. (previously presented) The plant according to claim 1, wherein the centromere of the mini-chromosome comprises n copies of a repeated nucleotide sequence, wherein n is less than 1000.

Claims 40-42 (canceled)

43. (previously presented) The plant according claim 1, wherein the mini-chromosome comprises a telomere.

44. (previously presented) The plant according to claim 1, wherein the mini-chromosome is circular.

45. (previously presented) The plant according to claim 1, wherein the plant is a monocotyledone.

46. (previously presented) The plant according to claim 1, wherein the plant is a dicotyledone.

Claims 47- 53 (canceled)

54. (currently amended) A part of the plant according to claim 1, wherein the plant

part comprises the minichromosome.

55. (canceled)

56. (currently amended) A meiocyte, gamete, ovule, pollen, or endosperm of the plant according to claim 1, wherein the meiocyte, gamete, ovule, pollen or endosperm comprises the minichromosome.

57. (currently amended) A seed, embryo or propagule of the plant according to claim 1, wherein the seed, embryo or propagule comprises the minichromosome.

58. (currently amended) A progeny of the plant according to claim 1, wherein the progeny comprises the minichromosome.

59. (original) The progeny of claim 58 wherein the progeny is the result of self-breeding.

60. (original) The progeny of claim 58 wherein the progeny is the result of cross-breeding.

61. (currently amended) The progeny of claim 58 wherein the progeny is the result of apomyxis ~~apomixis~~.

62. (original) The progeny of claim 58 wherein the progeny is the result of clonal propagation.

Claims 63-65 (cancelled)

66. (previously presented) A method of making a mini-chromosome for use in a plant,

comprising

identifying a centromere nucleotide sequence in a genomic DNA library using a multiplicity of diverse probes,

determining hybridization scores for hybridization of the multiplicity of diverse probes to genomic clones within the genomic DNA library,

determining a classification for genomic clones within the genomic DNA library according to the hybridization scores for at least two of the diverse probes, and

selecting one or more genomic clones within one or more classifications for constructing the mini-chromosome; and

constructing a mini-chromosome comprising the centromere nucleotide sequence.

Claims 67-88. (canceled)

89. (previously presented) A method of using a plant according to claim 1 to produce a food product comprising the steps of growing the plant, and harvesting or processing the plant.

90. (previously presented) A method of using a plant according to claim 1, to produce a recombinant protein comprising the step of growing a plant comprising a mini-chromosome that comprises an exogenous nucleic acid encoding the recombinant protein.

Claims 91-92 (canceled)

93. (previously presented) A method of using a plant according to claim 1 to produce a chemical product comprising the step of growing a plant comprising a mini-chromosome that comprises an exogenous nucleic acid encoding an enzyme involved in synthesis of the chemical product.

Claims 94-95 (canceled)

96. (previously presented) The plant according to claim 2, wherein the mini-chromosome has a transmission efficiency during meiotic division of at least 80%.